

THE CASSINI/HUYGENS MISSION TO THE SATURNIAN SYSTEM

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The Cassini/Huygens mission is designed to carry out an in-depth exploration of the Saturnian system. The spacecraft started its interplanetary journey with an October 15, 1996 with a Titan-4 Centaur launch. On the way to Saturn, Cassini/Huygens will flyby Venus, twice (April 26, 1998; June 24, 1999), the Earth once (August 18, 1999), and Jupiter (December 30, 2000). During the approach to Saturn, the small satellite Phoebe will be encountered on June 11, 2004. Upon arrival at Saturn on July 1, 2004, Cassini/Huygens will fire its main engine and go into orbit about the planet. Huygens will be delivered to Titan on November 27, 2004. After deceleration in the upper atmosphere, Huygens will deploy a parachute system and its six instruments will make scientific measurements and observations as it descends to the surface. These data then will be transmitted to the Orbiter which, in turn, will relay them to the Earth. The Orbiter will then commence a four year long tour of the Saturnian system.

With its complement of 12 instruments, Cassini is capable of making a wide range of in situ and remote sensing observations. There will be repeated close flybys of Titan both to make measurements and obtain observations and for gravity-assisted orbit changes that will enable Cassini to visit other satellites, various parts of the magnetosphere, and obtain occultations of the rings and atmospheres of Saturn and Titan. During the span of the mission, Cassini will also record temporal changes in many of the properties that it can observe. (The Cassini mission is a joint undertaking by NASA and ESA. This work was carried out at Jet Propulsion Laboratory, California Institute of Technology, under contract to NASA.)